(master)

University of Stuttgart

M. Sc.
Computer Science

www.informatik.uni-stuttgart.de

Computer Science at the University of Stuttgart

Interested in studying Computer Science in an international environment, in the heart of the leading technology region in Europe? The Master's program in Computer Science offers you just that: an English-language study program covering various scientific fields such as robotics, visual computing, service technology and engineering, database systems, and parallel as well as distributed systems, allowing you to follow your individual scientific interests. It is embedded in a department covering the whole range of Computer Science. With strong connections to well known companies situated around Stuttgart, the University offers excellent research and working environments with great job opportunities for talented and motivated students in industry as well as academia.

Contents of the program

The students have to decide on one of the offered majors: "Autonomous Systems in Computer Science", "Service Technology and Engineering", and "Visual Computing". In the major's compulsory courses the students acquire specialized knowledge. Additionally, the students can tune the program towards their individual interests and skills by selecting the courses of the elective part accordingly.

Prerequisites

A Bachelor's degree is required for admission to the M. Sc. Computer Science, as well as qualifying examination results in Computer Science or a closely related field, and adequate knowledge of the English language. Further information can be obtained from the program management of Computer Science.

*Scientists involved in data evaluation in front of the powerwall.*

Structure of the Program

The three majors differ in their focus with respect to Computer Science. "Autonomous Systems" combines courses in machine learning, artificial intelligence, decision making and robotics with sensors & actuators, hardware & software systems as well as parallel a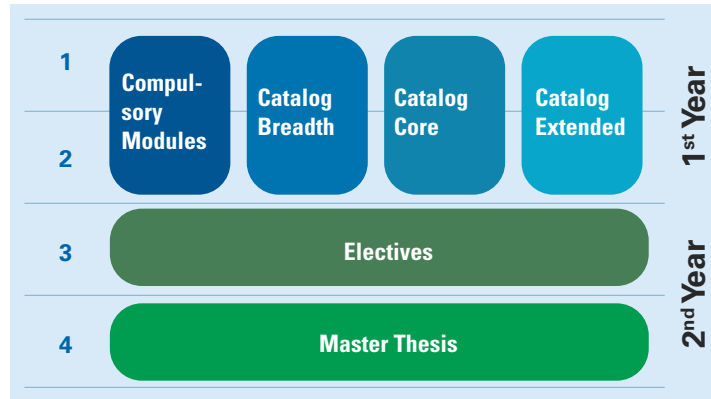nd distributed computing resources. "Service Technology and Engineering" aims to provide the scientific and technological foundations of services, to train people in the design and maintenance of service-oriented platforms and solutions. This major targets application domains such as mobility, communication, and product & production design. "Visual Computing" covers the entire visual computing pipeline by offering various lectures in the field of video processing, computer graphics, visualization, human machine interaction, and optimization.

In the first year the students attend the compulsory modules, and select a predefined number of modules from the core, the extended, and the breadth catalog, respectively. The three majors differ in all those catalogs, thus sharpening the respective profile. The core modules impart a more extensive understanding and knowledge of the field of the major. The extended modules are courses to support the core modules with focused in-depht knowledge. The breadth catalog
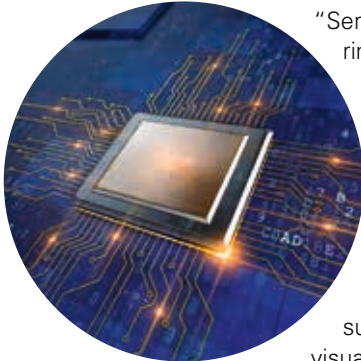
is offered to broaden the education in computer science in general. The third semester offers high flexibility as here electives can also be chosen from related Master programs, or the students can spend the semester abroad e.g. via the Erasmus Program. The fourth semester is reserved for the Master Thesis.

1st Year				
1	Compulsory Modules	Catalog Breadth	Catalog Core	Catalog Extended
2				

| 2nd Year	
3	Electives
4	Master Thesis

Outlook

The education in all three majors allows graduates to apply for senior management positions in their respective field: "Autonomous Systems" have already become a substantial part of our everyday life. As more and more industrial products are now adaptive, reactive, and able to learn from humans, a transitional change in the underlying technologies is required. The graduates from this major are equipped with the respective knowledge to support the development of these technological changes.

Services play an increasingly important role in society. Enterprises gain competitive advantages by offering services, and they join forces with other providers in order to deliver competitive products and services. The next generation of service engineers needs a deep insight into service orientation as well as trans-disciplinary thinking. The graduates from the major "Service Technology and Engineering" already fulfill this requirement and can help developing service orientation.

Visual cues are the most important sources of information for humans when it comes to making decisions. In face of the rapidly increasing amount of data created or collected by users, extracting, processing, visualizing, and interactively exploring relevant information becomes increasingly important in today's digital world. The graduates of the major "Visual Computing" have learned the necessary techniques for analyzing and preparing visual data for different purposes.

However, the program also constitutes a good opportunity to qualify for a Ph.D. program at a university or to start working as a researcher in the case of an outstanding degree.
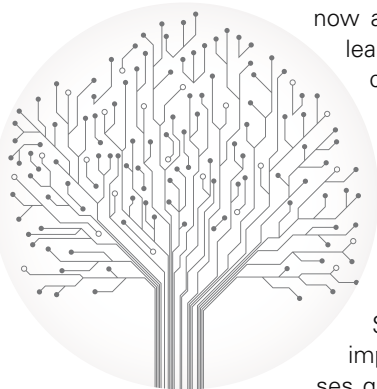
Program allowing
the visualization
of DNA data
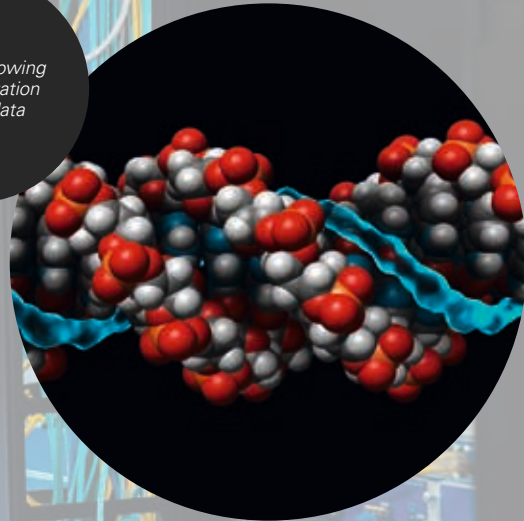
Faculty and University

The Department

Since its foundation in 1970, the Computer Science department has grown into an internationally renowned place of research. It is organized in Faculty 5, along with the department of Electrical Engineering and Information Technology. More than 20 professors, as well as several junior professors, are organized in eight institutes. Their high research intensity and their excellent success rate in acquiring research funding distinguish all Computer Science institutes. Research concentrates on fundamental topics, but also on current areas such as "ubiquitous systems", "service computing", "visualization" and "computational linguistics/e-humanities". A robotics laboratory, the highest-resolution 3D-powerwall-projection system in Europe, hardware laboratories and several student labs are part of our facilities.

The University

The University of Stuttgart is a research-intensive university with an engineering and science focus, as well as outstanding departments in the Humanities, Social Sciences and Economics. It has established itself as an internationally renowned center for research and training and has repeatedly been ranked among the top higher education establishments in Germany.

Life at the university has a clear international profile. A wide range of partnerships, inter-institutional agreements and exchange programs with universities throughout the world, place Stuttgart at the heart of a global network.

Student life

The University of Stuttgart hosts about 27,000 students, around 5,500 of which come from more than 100 countries all over the world. The university offers several programs for an active student life: a sports program, a language center, and the "Studium generale" with its orchestra, choir, debating club, amateur radio club, improvization theater and many more organizations.

Life in Stuttgart and its Region

The city of Stuttgart is the state capital of Baden-Württemberg, with about 600,000 inhabitants. It is situated in the valley of the river Neckar, between the hills of the Swabian Alb and the Black Forest. Stuttgart is a cosmopolitan city, full of cultural diversity and offering a high quality of life – e.g. Stuttgart is one of the safest big cities in Europe.

The Stuttgart region is an industrial center specializing in high-tech industries. Many internationally renowned companies such as Bosch, Daimler, Porsche and IBM Germany have their headquarters and factories in the greater Stuttgart region. In addition, numerous smaller companies producing machine tools, textiles, precision instruments and luxury items are also located here.

Although it is an industrial city, Stuttgart also offers many parks and is surrounded by forests and vineyards. Europe's second biggest mineral baths, famous for their medicinal effects, are situated here. A large number of cultural highlights are to be found in the city including opera, ballet, theaters, concert halls and musicals, and various museums.
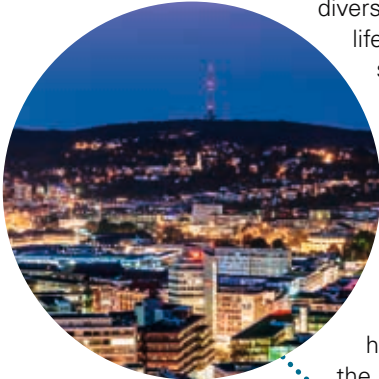
There is also a rich variety of attractive sporting events as well as the second largest "Volksfest" in Germany, the "Cannstatter Wasen". Stuttgart's nightlife holds something for everyone: clubs and lounges on the "Theodor-Heuss-Straße", small bars and cafes in the city's west end. Whether it be jazz, electro, hip-hop or other styles, there is something for every taste in music.

Mercedes-Benz Museum
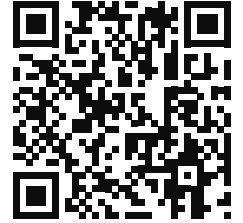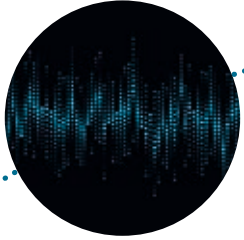
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